

TEAC



SERVICE MANUAL

T-R450/T-R400

FM/AM Digital Synthesizer Tuner

NOTES

- PC boards shown are viewed from parts side.
- The parts with no reference number or no parts number in the exploded views are not supplied.
- As regards the resistors and capacitors, refer to the circuit diagrams contained in this manual.
- ⚠ Parts marked with this sign are safety critical components.
They must be replaced with identical components—refer to the appropriate parts list and ensure exact replacement.

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SPECIFICATIONS

FM Section

Tuning Range :

87.5MHz~108.0 MHz(100KHz steps)
(General Export)
87.50MHz~108.00MHz (50KHz steps)(Europe)

Usable Sensitivity (IHF) : Mono : 10 dBf

50 dB Quieting Sensitivity :

Mono : 17 dBf
Stereo : 33 dBf

Alternate Channel Selectivity(98MHz±400KHz) :

65 dB

Image Response Ratio : 60 dB

Frequency Response : 20Hz~15KHz, +0.5 dB/ -3 dB

Capture Ratio : 2dB (at 98MHz)

Distortion (at 65dBf, 98MHz) :

Mono : 0.2%, Stereo : 0.3%

Signal-to-Noise Ratio (at 65dBf, 1KHz) :

Mono : 70 dB
Stereo : 65 dB

AM Suppression Ratio : 80 dB

Stereo Separation (1KHz) : 40 dB

Output (Level/Impedance) : 600mV/ 2.2Kohm

AM Section

Tuning Range :

530 KHz~1,720KHz (10KHz steps) (General Export)
522 KHz~1,620KHz (9KHz steps) (Europe)

Usable Sensitivity : 55dB/m (562μV/m, Loop Antenna)

Selectivity : 55dB (at ±9KHz)

Image Response Ratio : 35 dB

IF Response Ratio : 60 dB

Distortion : 1% (at 85 dB/m)

Signal-to Noise Ratio : 40 dB (at 85 dB/m)

Output (Level/Impedance) : 170mV/2.2 Kohm

General

Power Requirements :

230V AC, 50Hz (Europe)
115/230V AC, 50~60Hz (General Export)

Power Consumption :

T-R450 : 6W
T-R400 : 4.5W

Dimensions (W×H×D) : 435×87×294mm

Weight(net) : 2.9kg

Accessories :

AM Loop Antenna×1, FM Antenna×1
RCA pin plug cord×1, Remote Control Cable×1

- Improvements may result in specifications and features changing without notice.

PRODUCT SAFETY NOTICE

Many electrical and mechanical part in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual, electrical components having such features are identified by a $\triangle$ in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same-safety characteristics as specified in the parts list may create shock, fire or other hazards.

■ ALIGNMENT INSTRUCTIONS

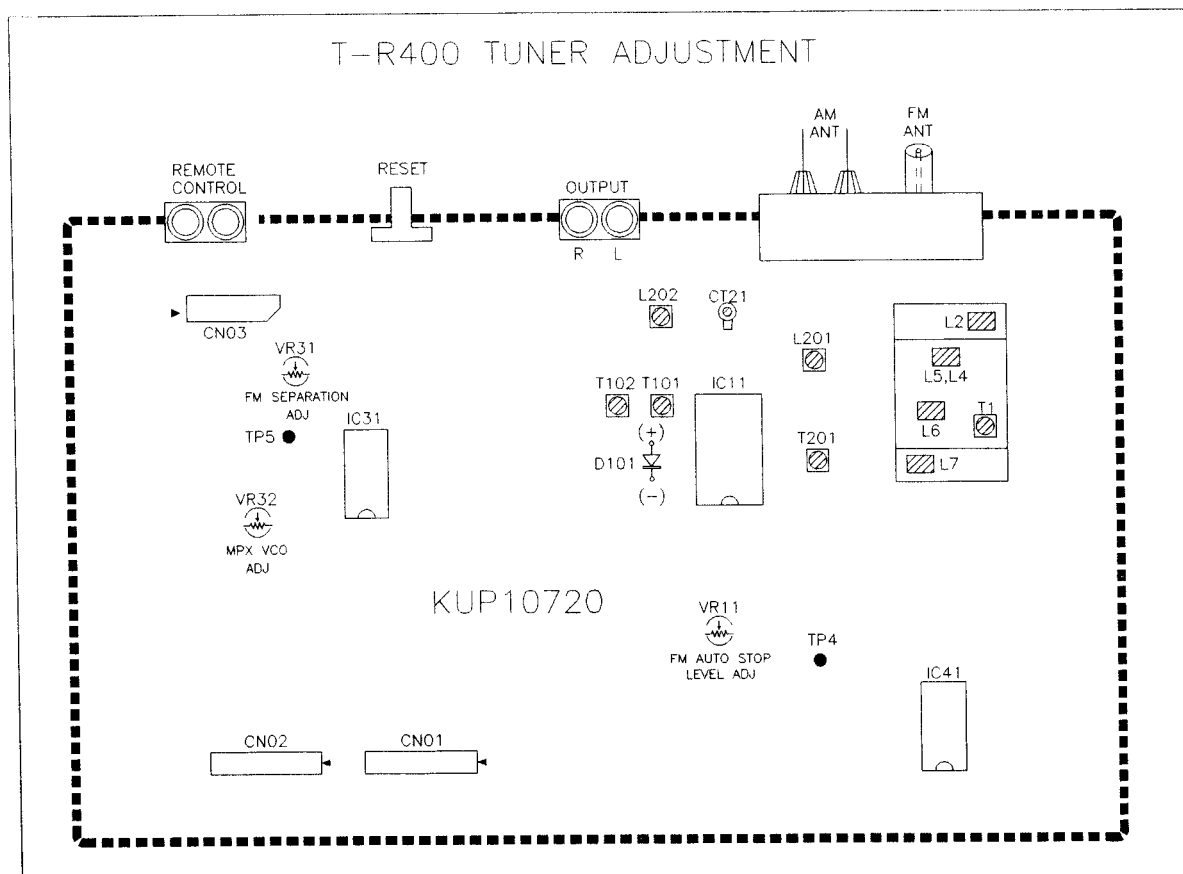
EQUIPMENT NEEDED:

AM Signal Generator
 FM Signal Generator
 Oscilloscope
 VTVM(AC, DC)
 Test loop antenna (MW Adjustment)
 Dummy antenna (FM Adjustment)
 Stereo signal modulator
 Distortion analyser

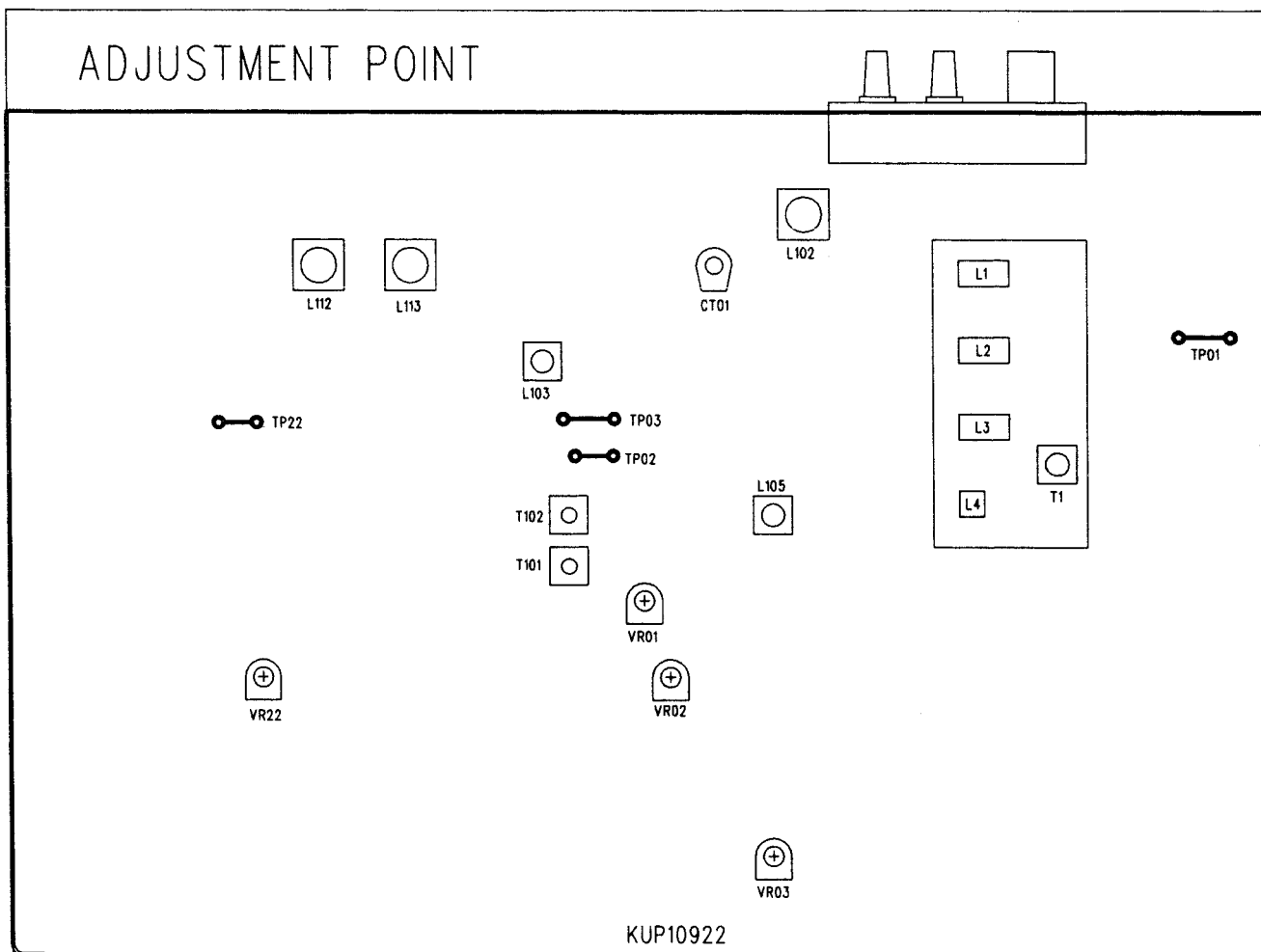
IMPORTANT

1. Check power-source voltage.
2. Set the function switch to band aligned.
3. Keep the signal input as low as possible to adjust accurately.
4. Modulation and modulation frequency.

Item Band	Modulation	Modulation frequency
MW	30%	400Hz
FM	100%(75KHz Dev.)	400Hz



ADJUSTMENT POINT

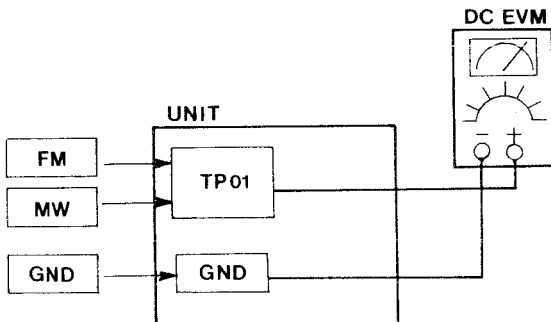


MEASUREMENTS AND ADJUSTMENTS

1. TUNING FREQUENCY RANGE ADJUSTMENTS

T-R450 : (FM)
(MW)

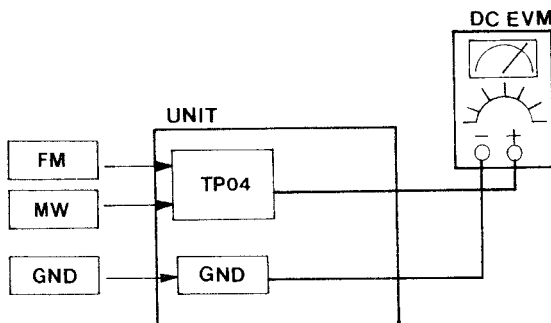
DC VOLTMETER CONNECT TO TEST POINT TP1 and GND
DC VOLTMETER CONNECT TO TEST POINT TP1 and GND



No	Band	Frequency	Adjust for	Adjustment
1	FM	87.50MHz	1.5V	L4
2	MW	522KHz	1V	L103

T-R400 : (FM)
(MW)

DC VOLTMETER CONNECT TO TEST POINT TP4 and GND
DC VOLTMETER CONNECT TO TEST POINT TP4 and GND

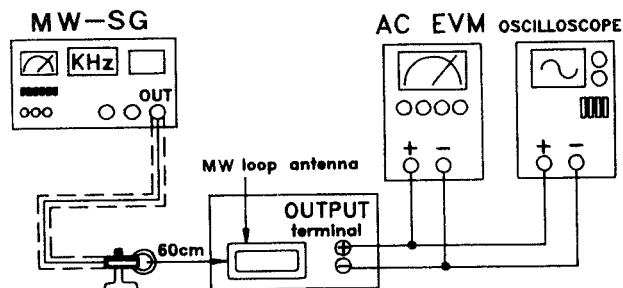


NO	Band	Frequency	Adjust for	Adjustment
1	FM	87.50MHz	2V	L7
2	MW	522KHz	1V	L202

2. MW TRACKING ADJUSTMENT

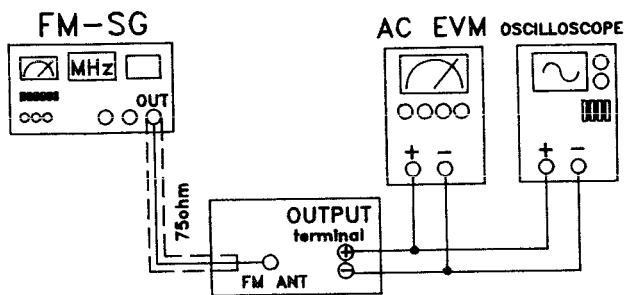
Signal Generator Connects to the MW Ant. Coil through the loop antenna.
Adjust for the indication of VTVM of the wave form of scope to be maximum.

BAND	Step	Frequency	Adjust for	Adjustment
MW	1	612KHz	Maximum sensitivity	T-R450 : L102, T-R400 : L201
	2	1503KHz	Mzxmum sensitivity	T-R450 : CT01, T-R400 : CT21
	3	Repeat steps 1 and 2 several times		



3. FM-RF ADJUSTMENT

Signal Generator.....Connect to FM ANT JACK (FM IN) through the dummy.



T-R450 :

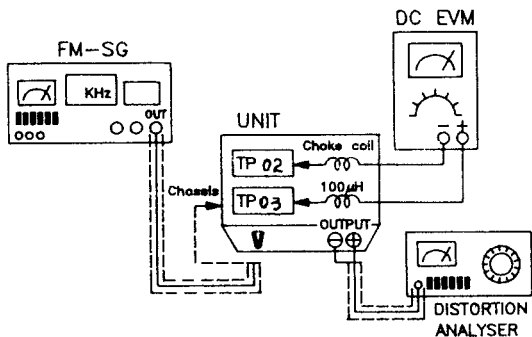
No	Frequency	Adjust for	Adjustment
1	90.10MHz	Maximum Sensitivity	L1, L2, L3
2	Repeat step 1 several times		

T-R400 :

NO	Frequency	Adjust for	Adjustment
1	90.10MHz	Maximum sensitivity	L2, L5, L6
2	Repeat step 1 several times		

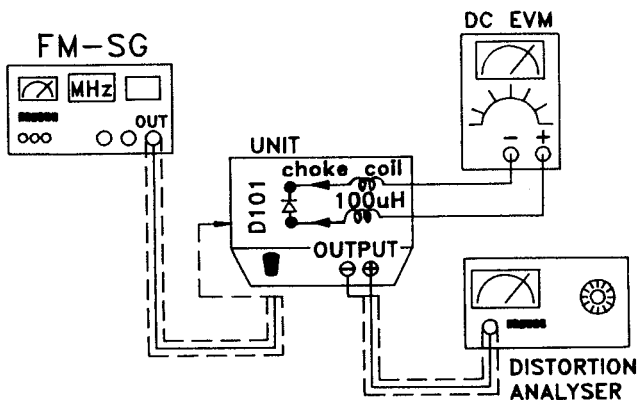
4. FM MONO DISTORTION ADJUSTMENT

T-R450 : DC VOLTMETER Connect to TP02(-), TP03(+) Through the choke coil (100 μ H)
Signal Generator Connect to FM ANT Jacek (FM IN) through the dummy.
Distortion Meter Connect to the output.



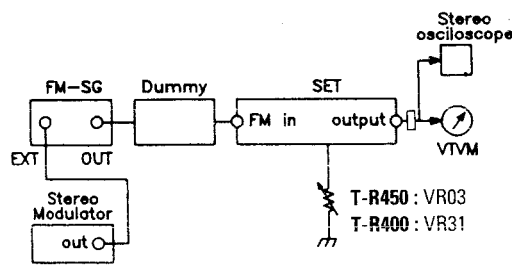
No	Frequency	Adjust for	Adjustment
1	100.10MHz	DC Voltmeter 0V	T101
2	100.10MHz	Minimum T. H. D	T102
3	Repeat steps 1 and 2 Several times.		

T-R400 : DC VOLTMETER Connect to D101(-), D101(+) through the chock coil(100uH)
Signal Generator Connect to FM ANT Jack(FM IN) through the dummy.
DISTORTION METER Connect to the output.



NO	Frequency	Adjust for	Adjustment
1	100.10MHz	DC Voltmeter 0V	T101
2	100.10MHz	Minimum T.H.D	T102
3	Repeat steps 1 and 2 several times		

5. FM STEREO SEPARATION



Pilot signal	Adjust for	Adjustment
ON	Different of R and L must be maximum	T-R450 : VR03 T-R400 : VR31

NOTE : In case of adjusting the stereo separation, of input is L (or R) channel, R (or L) channel must be maximum.

6. FM / MW TUNED LEVEL ADJUSTMENT (T-R450)

FM SIGNAL GENERATOR Connec to FM ANT Jack(FM IN)through the dummy
MW SIGNAL GENERATOR Connect to MW ANT, Coil through the Loop antenna

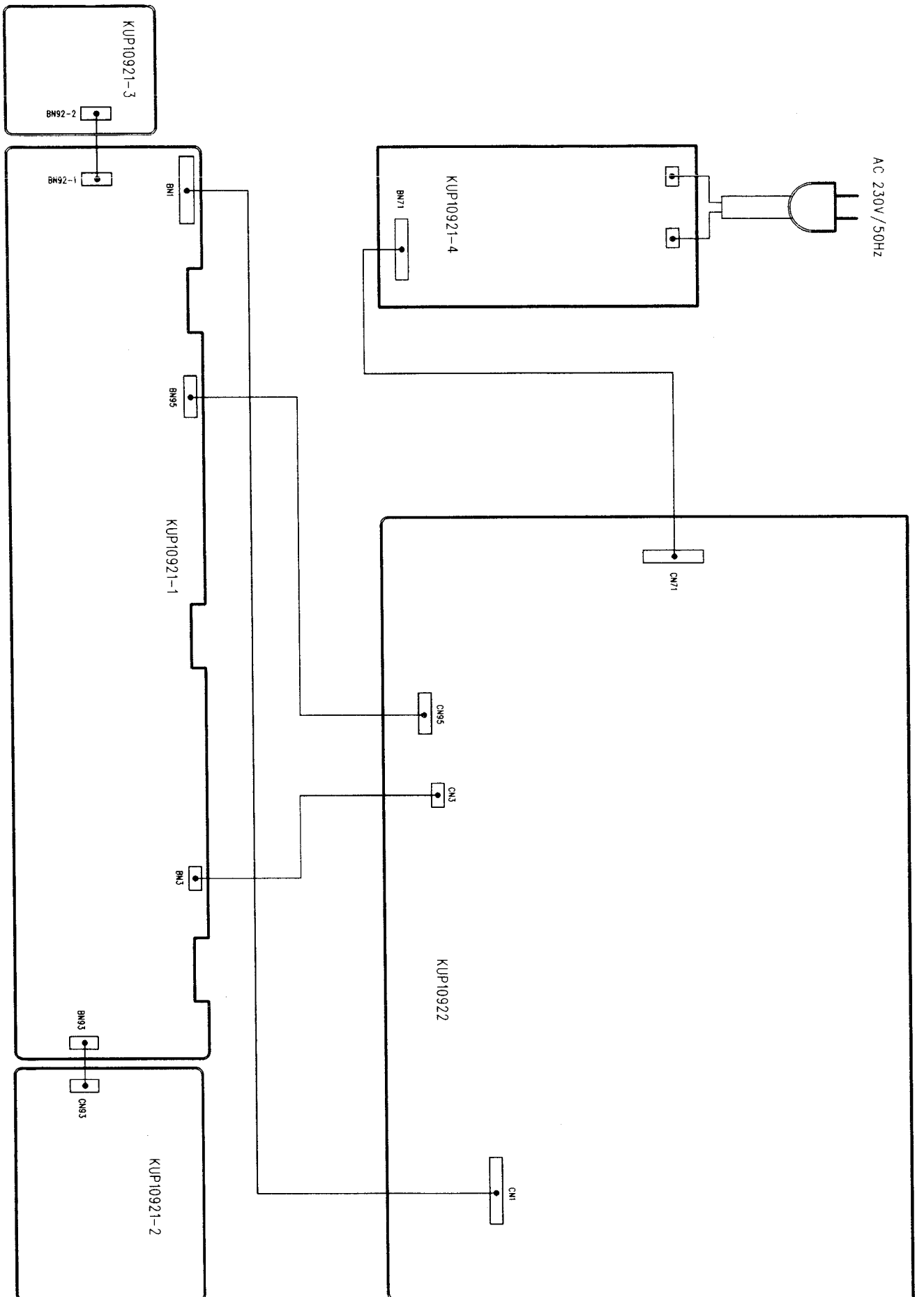
BAND	STEP	SIGNAL GENERATOR	Adjust for	Adjustment
FM	1	100.10MHz 30dB	☐ TUNED Display ON	VR02
	2	100.10MHz 30dB	☐ TUNED Display OFF	VR02
MW	1	999KHz 80dB	☐ TUNED Display ON	VR01
	2	999KHz 80dB	☐ TUNED Display OFF	VR01

7. FM AUTO STOP LEVEL ADJUSTMENT (T-R400)

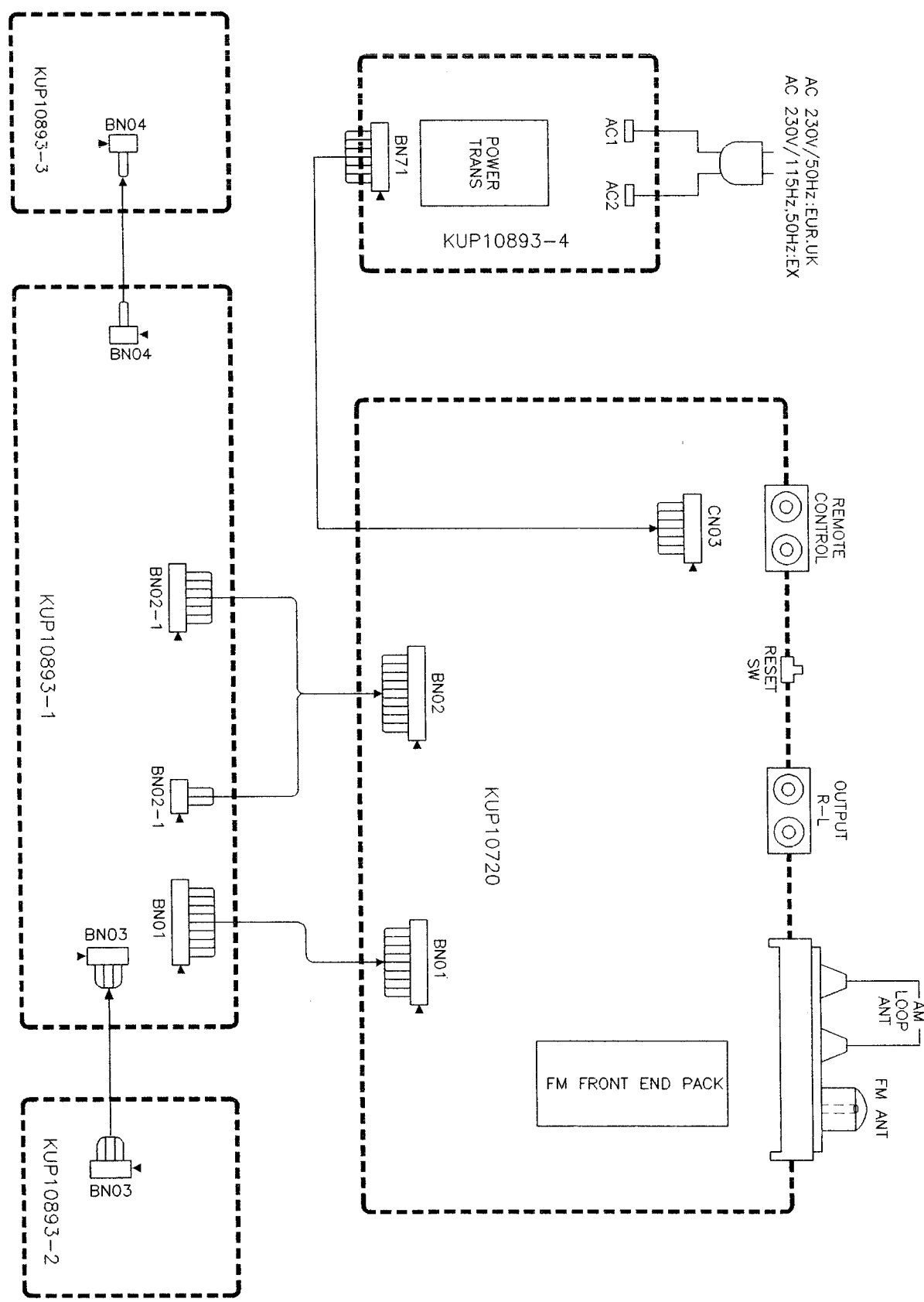
FM SIGNAL GENERATOR Connect to FM ANT Jack(FM IN) through the dummy.
UNIT Indicator of AUDIO

NO	Step	Signal Generator	Adjust for	Adjustment
FM	1	100.1MHz 41dB	Quartz(D910) off	VR11
	2	100.1MHz 41dB	Quartz(D910) on	VR12

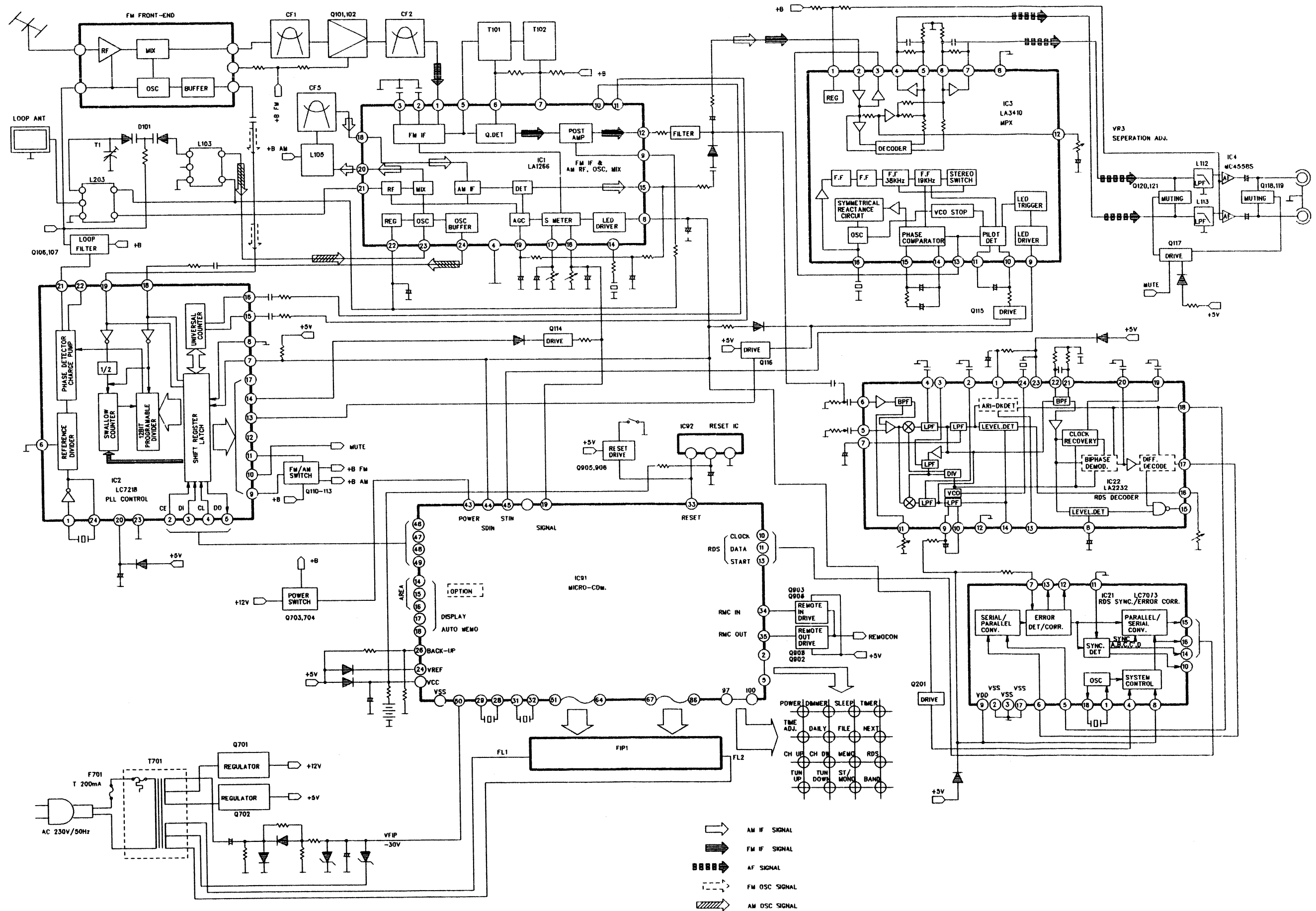
WIRING DIAGRAM (T-R450)



WIRING DIAGRAM (T-R400)



BLOCK DIAGRAM (T-R450)

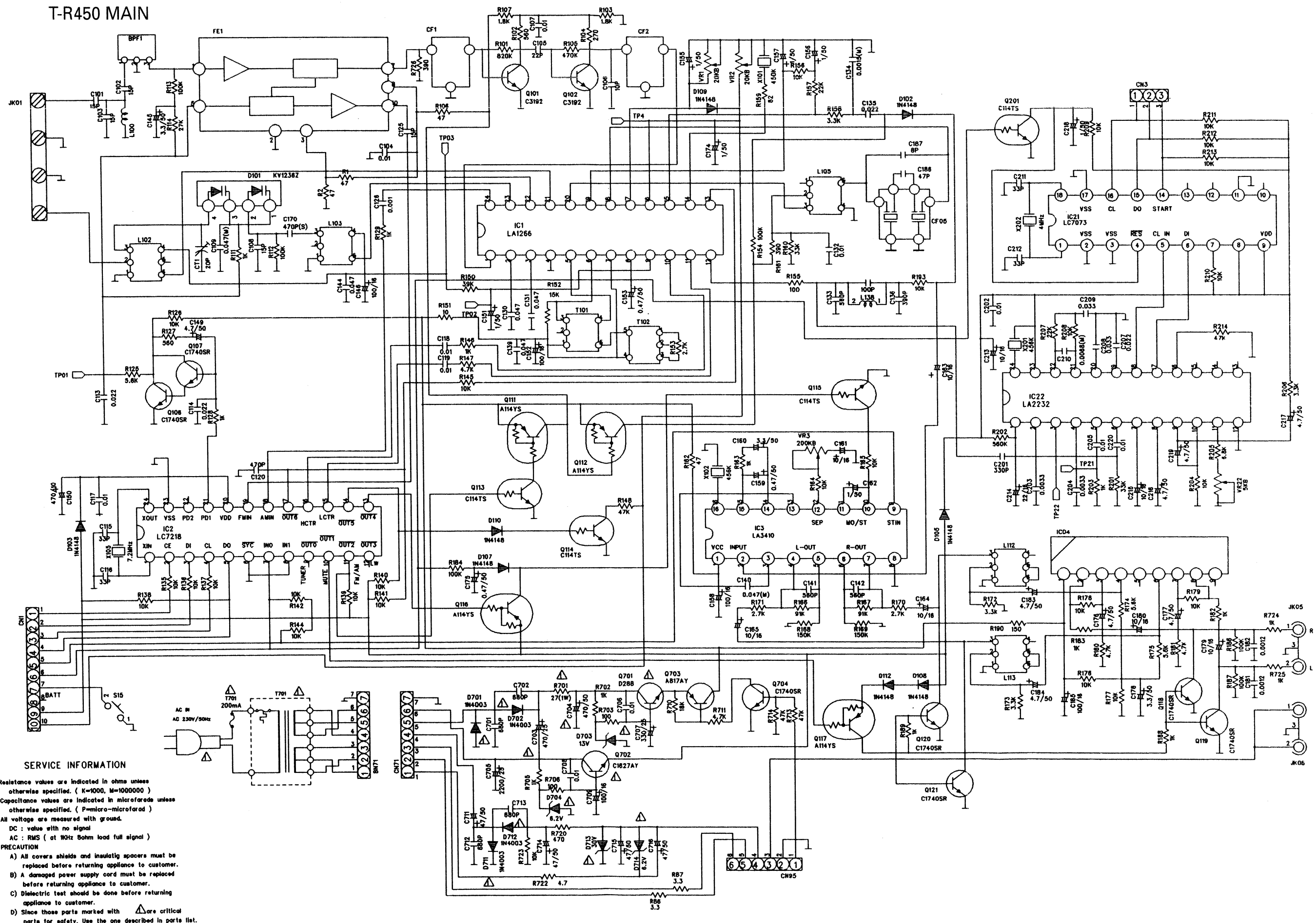


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SCHEMATIC DIAGRAM

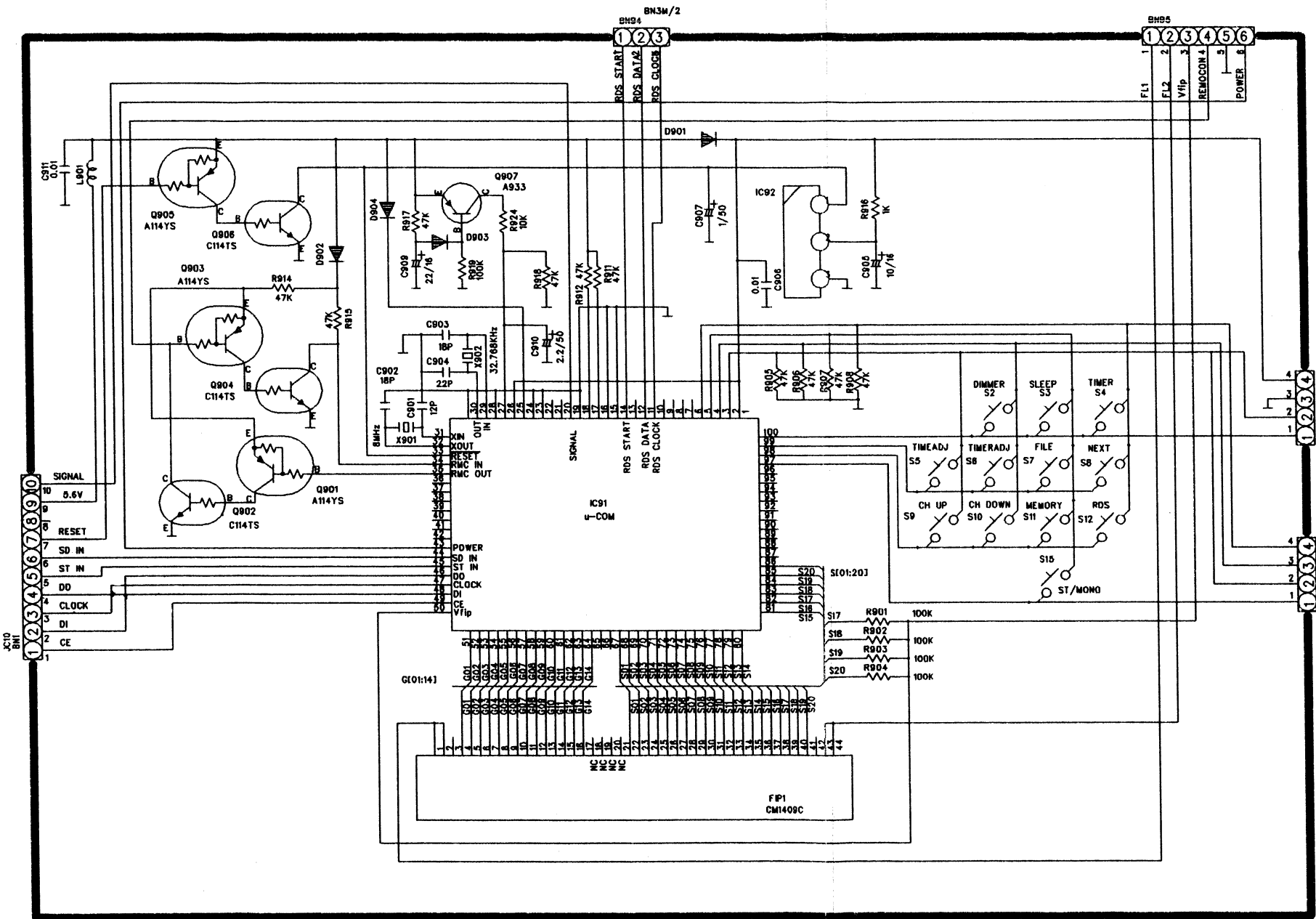
T-R450 MAIN



SERVICE INFORMATION

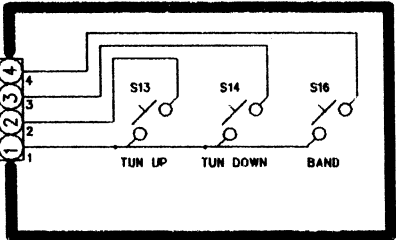
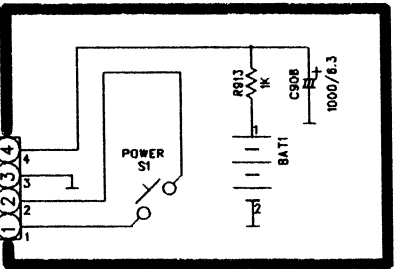
1. Resistance values are indicated in ohms unless otherwise specified. (K=1000, M=1000000)
2. Capacitance values are indicated in microfarads unless otherwise specified. (P=pico-microfarad)
3. All voltage are measured with ground.
DC : value with no signal
AC : RMS (at 10Hz 8ohm load full signal)
4. PRECAUTION
 - A) All covers shields and insulating spacers must be replaced before returning appliance to customer.
 - B) A damaged power supply cord must be replaced before returning appliance to customer.
 - C) Dielectric test should be done before returning appliance to customer.
 - D) Since those parts marked with  are critical parts for safety. Use the one described in parts list.

T-R450 SUB SCHEMATIC DIAGRAM

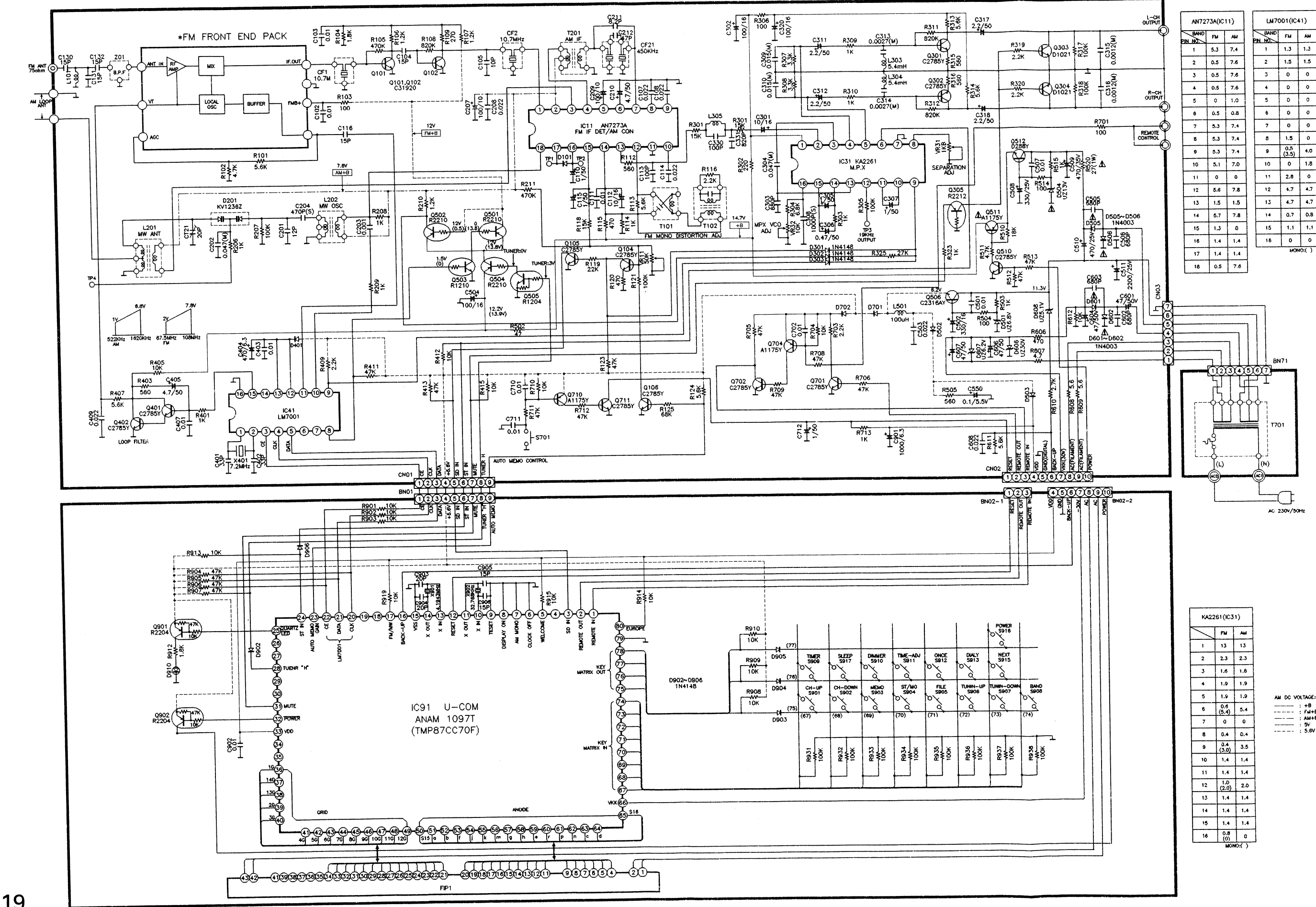


SERVICE INFORMATION

1. Resistance values are indicated in ohms unless otherwise specified. (K=1000, M=1000000)
2. Capacitance values are indicated in microfarad unless otherwise specified. (P=micro-microfarad)
3. All voltage are measured with ground.
DC : value with no signal
AC : RMS (at 1KHz 8ohm load full signal)
4. PRECAUTION
A) All covers shields and insulating spacers must be replaced before returning appliance to customer.
B) A damaged power supply cord must be replaced before returning appliance to customer.
C) Dielectric test should be done before returning appliance to customer.
D) Since those parts marked with Δ are critical parts for safety. Use the one described in parts list.

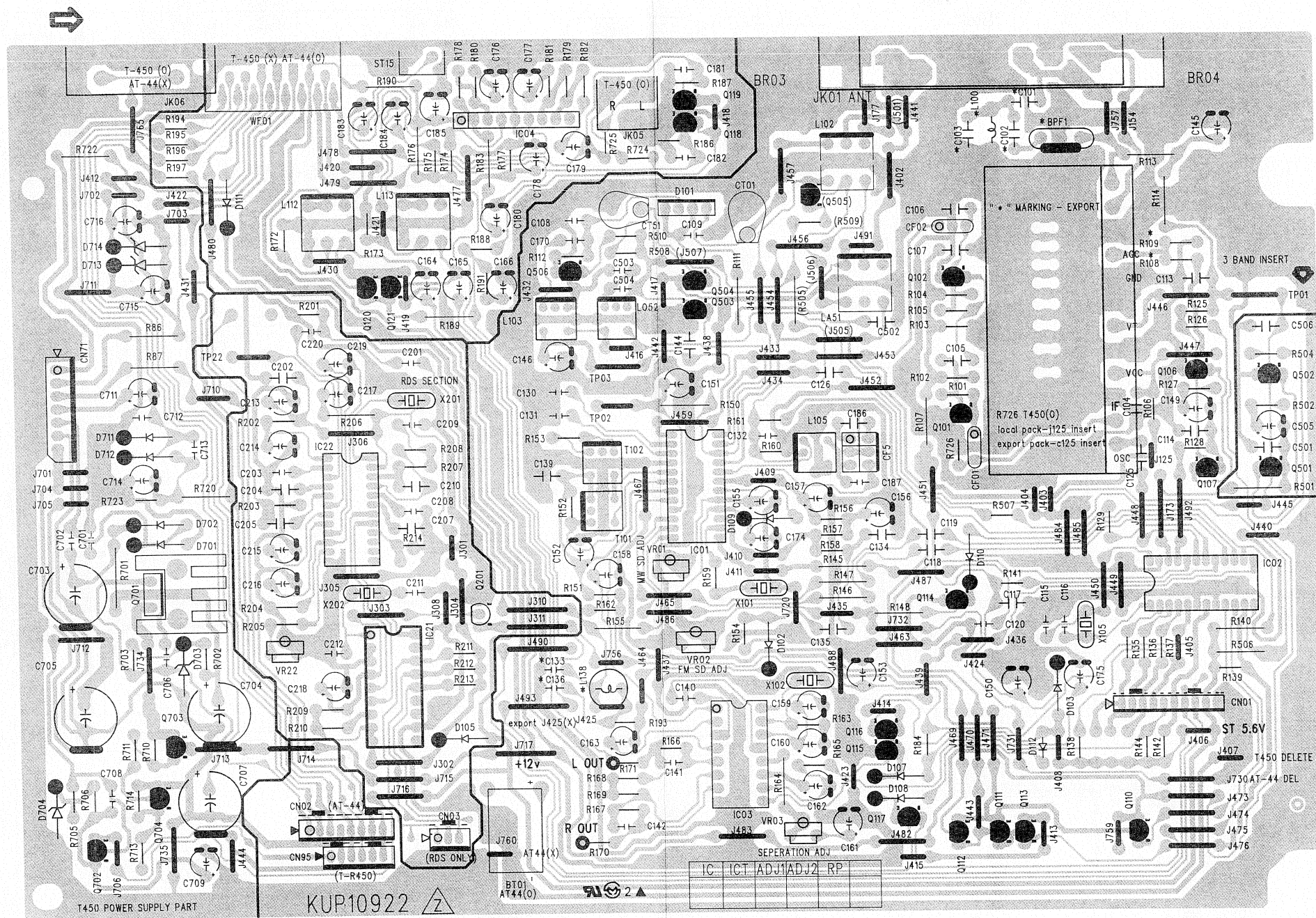


SCHEMATIC DIAGRAM (T-R400)

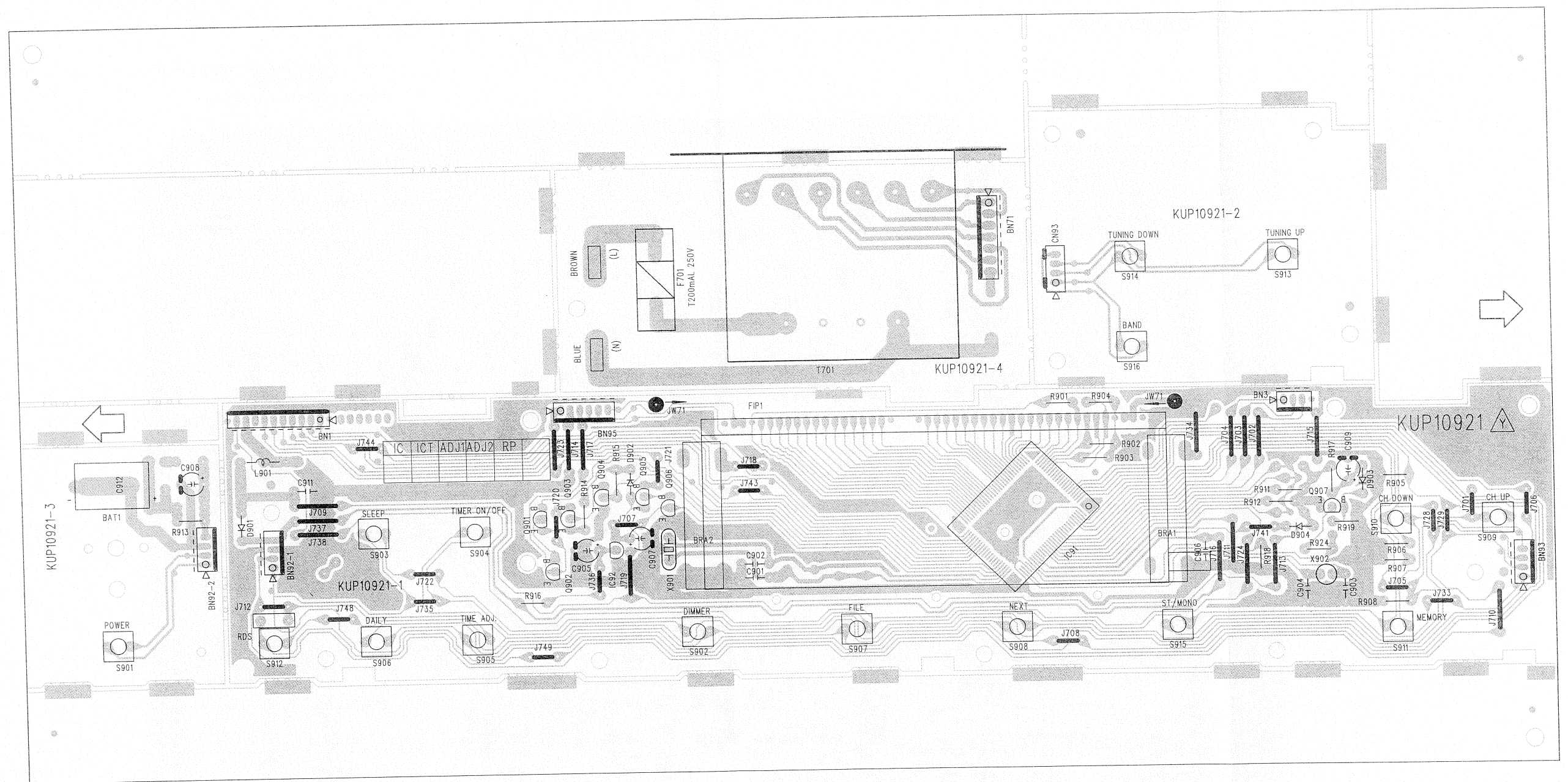


PRINTED CIRCUIT BOARDS

T-R450 MAIN PCB



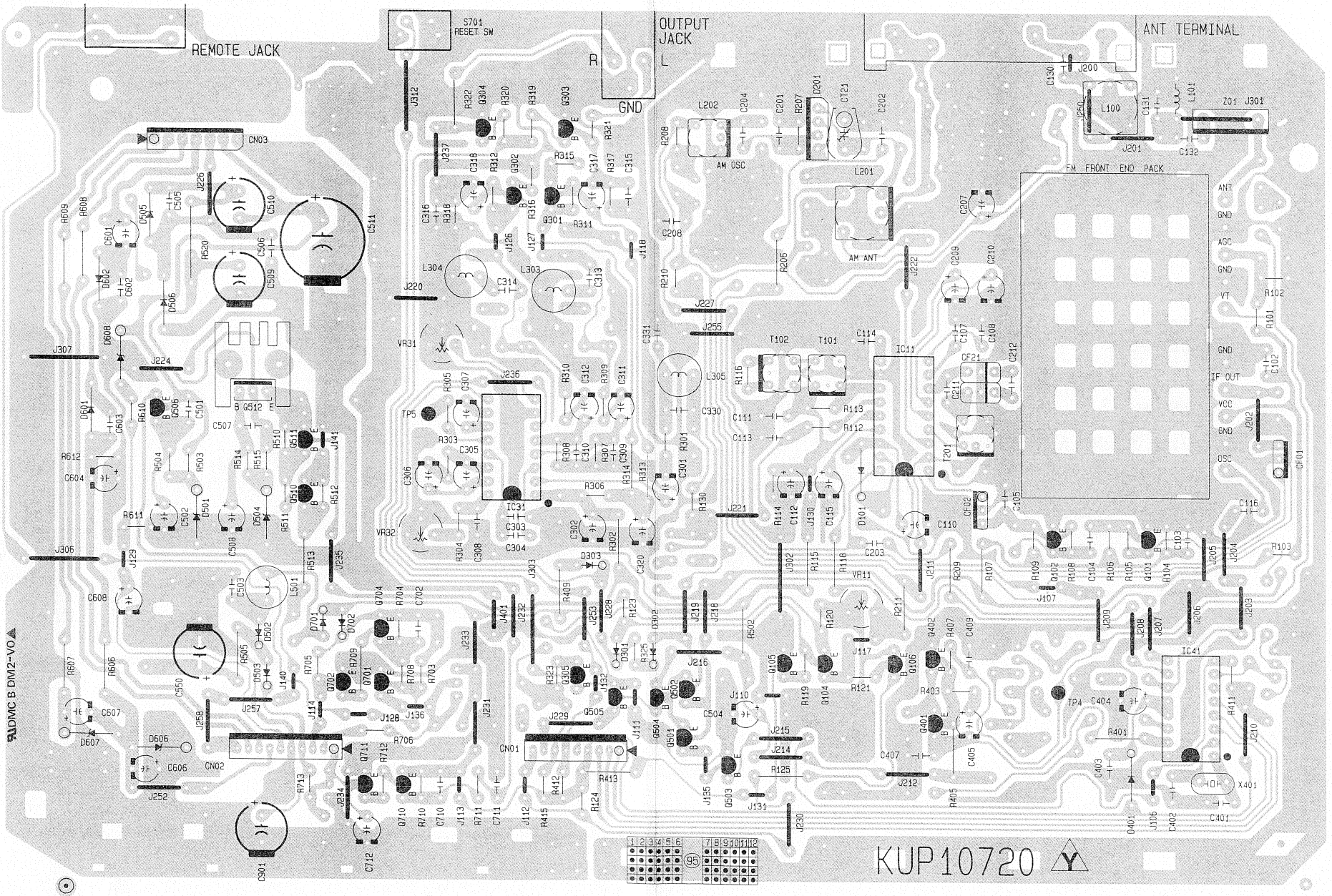
T-R450 SUB PCB



T-R400 MAIN PCB

KUP10720

ONLY KT-1030,T-R400;R101,R102,C130,C131
C132,L101,J250,Z01
ONLY T -R400EX;L100,J301,J200

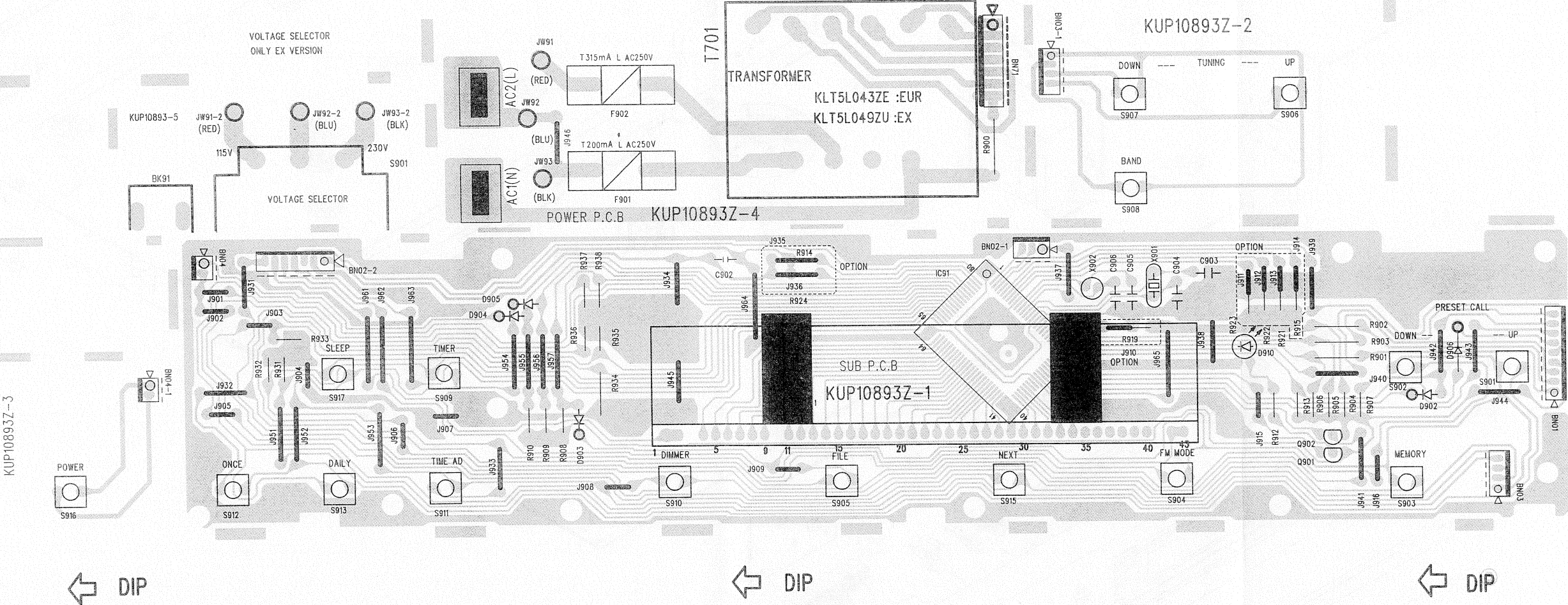


T-R400 SUB PCB

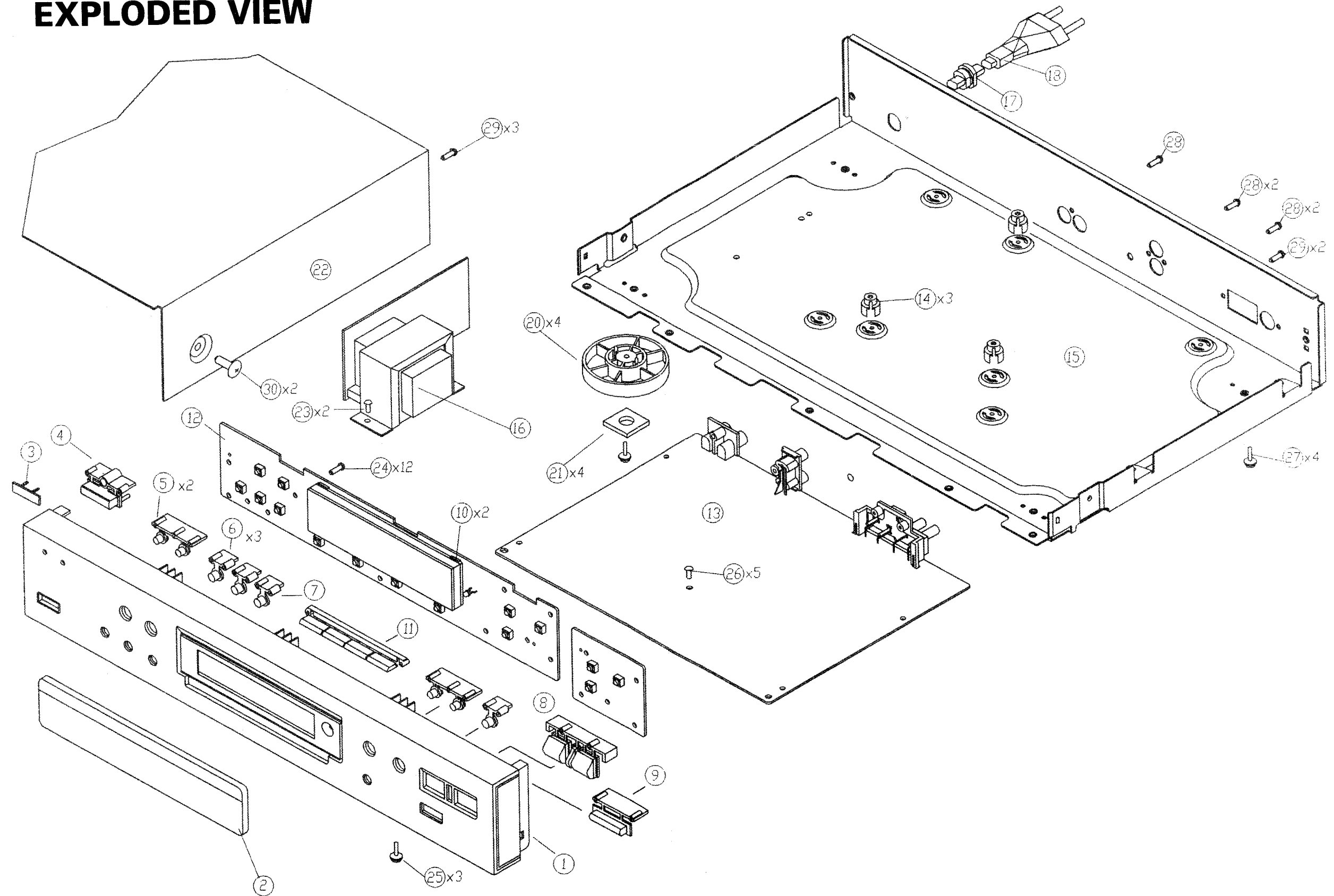
KUP10893 

TUNER SUB P.C.B :T-R400EUR
:T-R400EX

ONLY EUR VERSION: J946
ONLY EX VERSION:JW91,JW92,JW93,F902



EXPLODED VIEW



EXPLODED VIEW [T-R450]

Ref. No.	Part No.	Description	Remarks
1	9A05961000	PANEL,FRONT T-R450	
2	9A05898300	WINDOW	
3	9A05898400	BADGE	
4	9A05887200	KNOB,POWER	
5	9A05898500	KNOB,TACT	
6	9A05898600	KNOB,TACT,MEMORY	
7	9A05898700	KNOB,TIME ADJUST	
8	9A05898800	KNOB,TUNING	
9	9A05898900	KNOB,BAND	
10	9A05899000	STOPPER,FLT	
11	9A05899100	KNOB,TACT	
12	9A05909800	ASS'Y,PCB,SUB	
13	9A05909900	ASS'Y,PCB,MAIN	
14	9A01375500	PCB HOLDER	
15	9A05899400	CHASSIS,BOTTOM	
16 Δ	9A05899500	TRANSFORMER, POWER [E]	
17 Δ	9A01376900	CORD PUSHING	
18 Δ	9A05892200	CORD, POWER [E]	
19			
20	9A05891400	FOOT,FRONT	
21	9A05891500	FOOT,CUSHION	
22	9A05899600	CABINET, TOP	
23	9A01477800	SCREW, KTB4*8F	
24	9A01377400	SCREW, KTB3*10G	
25	9A01535800	SCREW, KTB3*8J	
26	9A05899700	SCREW	
27	9A05339200	SCREW KTW3+8J	
28	9A05899800	SCREW	
29	9A01377200	SCREW	
30	9A01397700	SCREW	

INCLUDED ACCESSORIES

Ref. No.	Part No.	Description	Remarks
	9A05573500	OWNER'S MANUAL,T-R400/450	
	9A04883100	ANT,FM WIRE	
	9A05937300	LOOP ANT ASSY	

Parts marked with * require longer delivery time.

[E] : EUROPE

EXPLODED VIEW [T-R400]

Ref. No.	Part No.	Description	Remarks
1	9A05898200	PANEL,FRONT	
2	9A05898300	WINDOW	
3	9A05898400	BADGE	
4	9A05887200	KNOB,POWER	
5	9A05898500	KNOB,TACT	
6	9A05898600	KNOB,TACT,MEMORY	
7	9A05898700	KNOB,TIME ADJUST	
8	9A05898800	KNOB,TUNING	
9	9A05898900	KNOB,BAND	
10	9A05899000	STOPPER,FLT	
11	9A05899100	KNOB,TACT	
12	9A05899200	ASS'Y,PCB,SUB	
13	9A05899300	ASS'Y,PCB,MAIN	
14	9A01375500	PCB HOLDER	
15	9A05899400	CHASSIS,BOTTOM	
16 Δ	9A05899500	TRANSFORMER, POWER [E]	
Δ	9A05910200	TRANSFORMER, POWER [GE]	
17 Δ	9A01376900	CORD PUSHING	
18 Δ	9A05892200	CORD, POWER [E]	
Δ	9A05897600	CORD, POWER [GE]	
19			
20	9A05891400	FOOT,FRONT	
21	9A05891500	FOOT,CUSHION	
22	9A05899600	CABINET, TOP	
23	9A01477800	SCREW, KTB4*8F	
24	9A01377400	SCREW, KTB3*10G	
25	9A01535800	SCREW, KTB3*8J	
26	9A05899700	SCREW	
27	9A05339200	SCREW KTW3+8J	
28	9A05899800	SCREW	
29	9A01377200	SCREW	
30	9A01397700	SCREW	

INCLUDED ACCESSORIES

Ref. No.	Part No.	Description	Remarks
	9A05573500	OWNER'S MANUAL,T-R400/450	
	9A04883100	ANT,FM WIRE	
	9A05937300	LOOP ANT ASSY	

Parts marked with * require longer delivery time.

[E] : EUROPE [GE] : GENERAL EXPORT

ELECTRICAL PARTS LIST

CAUTION: A Δ in the schematic diagram and the parts list designates components which have special characteristics important to safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.
Before replacing any of it these componts, read carefully the PRODUCT SAFETY NOTICE on page 3 in this manual. Do not harm the safety of the unit through improper servicing.

■ Numbering System of Resistor

Example

KRD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value
Resistor Type	Wattage	Tolerance		
KRD: Carbon	20:1/5W	F:±1%		
KRG: Metal Oxide	25:1/4W	J:±5%		
	50:1/2W	K:±10%		
	1:1W			

■ Numbering System of Capacitor

Example

KCKR	1H	101	K	B
Type	Voltage	Value	Tolerance	Peculiarity
Capacitor Type	Voltage	Tolerance		
KCB: Ceramic	0J:6.3V	C:±0.25pF		
KCC: Ceramic	1A:10V	G:±2%		
KCK: Ceramic	1C:16V	J:±5%		
KCFR: Semiconductor	1E:25V	K:±10%		
KCQI: Polyester	1H:50V	Z:±80%		
KCQP: Polystyrol	1V:35V	-20%		
KCQS: Polystyrol				

MAIN PCB ASSY T-R450

Ref. No.	Part No.	Description
	9A05909900	ASS'Y,PCB,MAIN
	9A05937500	PCB,MAIN
	9A05939400	IFT,MW
	9A04874300	CRYSTAL
	9A05961300	COIL, AM ANT
	9A05961400	COIL, CHORK
	9A05935900	CORD, PIN
	9A05936000	CORD, PIN
	9A05936100	TERMINAL
	9A01409200	LUG
	9A05936200	ANT, BASE LOOP
	9A05936300	HOLDER, LOOP ANT
	9A05936400	LOOP ANT HOLDER ASSY
	9A05961500	PLATE, EARTH
	9A05961600	BRACKET, FLT
BPF1	9A05333500	HEAT SINK
CF01,02	9A05937400	HEAT SINK ASSY
CF05	9A05195100	B.P.F.,BPMB8
	9A01407600	CERAMIC FILTER,FM 10.7MHZ
	9A01407700	CERAMIC FILTER,AM 450KHZ
CN11	9A05330700	WAFER MOLEX 53014-1010
CN3	9A05938500	WAFER,3P
CN71	9A05356500	WAFER 07GA19ZM
CN95	9A05329700	WAFER MOLEX53014-0610
CT01	9A01405900	C,VARIABLE 20PF A020S12
C705	Δ 9A01402000	C,ELEC 2200UF/25V
D101	9A01405200	DIODE,KV1236Z
D102,103	9A01390600	DIODE,1N4148T
D105	9A01390600	DIODE,1N4148T
D107-110	9A01390600	DIODE,1N4148T
D112	9A01390500	DIODE,1N4148MT
D701,702	Δ 9A05938600	DIODE,1N4003S
D703	Δ 9A05902000	DIODE,ZENER,13V
D704	Δ 9A05902300	DIODE,ZENER,6.2Z
D711,712	Δ 9A05938600	DIODE,1N4003S
D713	Δ 9A05902200	DIODE,ZENER,30V
D714	Δ 9A05902300	DIODE,ZENER,6.2Z
FE01	9A05938700	FRONT END
IC01	9A05938800	IC.,LA1266
IC02	9A05424600	IC BVILC7218
IC03	9A05938900	IC.,LA3410
IC04	9A05195800	IC,MC4558S
IC21	9A05939000	IC.,LC7073
IC22	9A05939100	IC.,LA2232
JK01	9A05935800	JACK, LINE IN TERMINAL
JK05	9A04875900	TERMINAL,ANT
JK06	9A05916800	JACK, BOARD
L100	9A04875000	COIL,FILTER
L102	9A05939200	ANT.
L103	9A05939300	OSC,MW
L105	9A05939400	IFT,MW
L112,113	9A01407300	COIL, MPX
L138	9A05332600	COIL A183KWCZ
Q101,102	9A05902700	TR.,KTC31920
Q106,107	9A05939500	TR.,2SC1740SR

MAIN PCB ASSY

Ref. No.	Part No.	Description
Q111,112	9A05196400	TR,DTA114YST
Q113-115	9A05911500	TR.,DTC114TS
Q116,117	9A05196400	TR,DTA114YST
Q118-121	9A05939500	TR.,2SC1740SR
Q201	9A05911500	TR.,DTC114TS
Q701	9A01388300	TR.,KVTKSD288Y
Q702	Δ 9A05939600	TR.,KTC3227Y
Q703	Δ 9A05939700	TR.,KTA1274Y
Q704	9A05939500	TR.,2SC1740SR
R701	Δ 9A05907900	R.,27-OHM,1W
S15	9A04882400	SW,TACT
T101	9A05940200	IFT,FM,KLI3B020-G
T102	9A05940300	IFT,FM,KLI3B021-G
VR01,02	9A05317700	VR, SEMI FIX EVNDJAA03B24
VR03	9A05940400	VR.,200KB
VR22	9A05940500	VR.,5KB
X101	9A05940600	RESONATOR,BFU450C4N
X102	9A05317200	RESONATOR, CERAMIC CSB45
X105	9A05940700	CRYSTAL,7.2MHZ
X201	9A05940800	RESONATOR,CSB456F33
X202	9A05940900	CRYSTAL,4.0MHZ
Z001	9A05195100	B.P.F.,BPMB8

SUB PCB ASSY

Ref. No.	Part No.	Description
	9A05909800	ASS'Y,PCB,SUB
	9A05910300	PCB,SUB,KUP10921
	9A05328200	HOLDER, FUSE
CN93	9A05356300	WAFER 04GA19ZM
D901-905	9A01390500	DIODE,1N4148MT
FIP1	9A05911200	DISPLAY,FL
F701	9A05911100	FUSE,200MAL/250V
F901	9A05911100	FUSE,200MAL/250V
IC91	9A05911300	U-COM,ANAM1148T-1
IC92	9A05317300	I.C RE5VA30CC
L901	9A05911400	COIL,CHOKE
Q901	9A05196400	TR,DTA114YST
Q902	9A05911500	TR.,DTC114TS
Q903	9A05196400	TR,DTA114YST
Q904	9A05911500	TR.,DTC114TS
Q905	9A05196400	TR,DTA114YST
Q906	9A05911500	TR.,DTC114TS
Q907	9A05911600	TR.,2SA933SR
S1-16	9A04882500	SW,TACT
X901	9A05193000	CRYSTAL
X902	9A05188800	CRYSTAL

MAIN PCB ASSY T-R400

Ref. No.	Part No.	Description
	9A05899300	ASSY,PCB,MAIN
	9A05900500	PCB,MAIN
	9A05935800	JACK, LINE IN TERMINAL
	9A05916800	JACK, BOARD
	9A05330000	WAFER MOLEX 5267-07A
	9A05935900	CORD, PIN
	9A05936000	CORD, PIN
	9A05936100	TERMINAL
	9A01409200	LUG
	9A01407000	IFT,FM 3B014-G
	9A05936200	ANT, BASE LOOP
	9A01535700	LOOP ANT HOLDER
	9A05936400	LOOP ANT HOLDER ASSY
	9A05333500	HEAT SINK
	9A04874100	FRONT END
	9A05937400	HEAT SINK ASSY
CF01,02	9A01407600	CERAMIC FILTER,FM 10.7MHZ
CF21	9A01407700	CERAMIC FILTER,AM 450KHZ
CN01	9A05330500	WAFER
CN02	9A05330800	WAFER 10GA47ZG
CN03	9A05330200	WAFER FIL-S-7P-S2T2EF
CT21	9A01405900	C,VARIABLE 20PF A020S12
C204	9A01507300	C,SEMI-CON 470PF/50V
C511	Δ 9A01402000	C,ELEC 2200UF/25V
D101	9A01538300	DIODE, BVDMA27WA
D201	9A01405200	DIODE,KV1236Z
D301-303	9A01390500	DIODE,1N4148MT
D401	9A01390600	DIODE,1N4148T
D501	9A05901900	DIODE,ZENER,6.8V
D502,503	9A01390500	DIODE,1N4148MT
D504	Δ 9A05902000	DIODE,ZENER,13V
D505,506	Δ 9A05902100	DIODE,RECTIFIER,1N4003H
D601,602	Δ 9A05902100	DIODE,RECTIFIER,1N4003H
D606	9A05902200	DIODE,ZENER,30V
D607	9A05902300	DIODE,ZENER,6.2Z
D608	9A05894800	DIODE,ZENER
D701,702	9A01390500	DIODE,1N4148MT
FE01	9A04874100	FRONT END
FIP1	9A05316700	F.I.P 14AM6R
IC11	9A03745500	IC, RF AMP, BVIAN7273A
IC31	9A05902400	IC.,MPX
IC41	9A04323300	IC,LM7001
JK05	9A04875900	TERMINAL,ANT
L101	9A04875000	COIL,FILTER
L201	9A05902600	COIL,AM ANT
L202	9A01406700	COIL,AM OSC 2B7-G
L303,304	9A04883400	COIL
L305	9A04883300	COIL
L501	9A03746700	COIL
Q101,102	9A05902700	TR.,KTC31920
Q104-106	9A03745000	TR., KVTKSC2785YT
Q301,302	9A03745000	TR., KVTKSC2785YT
Q305	9A05902800	TR.,KSR2212
Q401,402	9A03745000	TR., KVTKSC2785YT
Q501,502	9A05197100	TR,KSR2210T
Q503	9A05197000	TR,KSR1210T
Q504	9A05197100	TR,KSR2210T
Q505	9A03747200	TR., KVTKSR1204T
Q506	9A01387900	TR,KSC2316Y
Q510	9A03745000	TR., KVTKSC2785YT

MAIN PCB ASSY

Ref. No.	Part No.	Description
Q511	Δ 9A03745100	TR., KVTKSA1175YT
Q512	9A05903000	TR.,KSD288Y
Q701,702	9A03745000	TR., KVTKSC2785YT
Q704	9A03745100	TR., KVTKSA1175YT
Q710	9A03745100	TR., KVTKSA1175YT
Q711	9A03745000	TR., KVTKSC2785YT
R520	Δ 9A05907900	R.,27-OHM,1W
R607	9A01492600	R,CARBON 1/4W 4.7
R608,609	9A05337000	R, CARBON 25TJ5R6T
R701	9A01378300	R,CARBON 1/5W 100
S701	9A05908000	SW.,TACT,RESESET
T101	9A01406900	IFT,FM 3B013-G
T102	9A01406800	IFT,AM 2B101-G
T201	9A01406800	IFT,AM 2B101-G
VR11	9A05908100	VR.,55K-OHM
VR31	9A05908200	VR.,1K-OHM
VR32	9A05317400	RES , SEMI FIXED EVNDJAA0
X401	9A04874300	CRYSTAL
Z001	9A05195100	B.P.F.,BPMB8

SUB PCB ASSY

Ref. No.	Part No.	Description
	9A05899200	ASSY,PCB,SUB
	9A05899900	PCB,SUB
	9A05328200	HOLDER , FUSE
	9A05899200	ASSY,PCB,SUB
D902	9A01390600	DIODE,1N4148T
D903	9A01390500	DIODE,1N4148MT
D904-906	9A01390600	DIODE,1N4148T
D910	9A01391900	LED (RED)
D911,912	9A05900300	LED,RED
F901	9A05911100	FUSE,200MAL/250V
IC91	9A05189300	IC,ANAM1097T
Q901,902	9A05900400	TR.,KSR2204
S901-913	9A04882500	SW,TACT
S915-917	9A04882500	SW,TACT
X901	9A05192900	CRYSTAL
X902	9A05188800	CRYSTAL